Early trade in highland Iran: a view from a source area

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Introduction

Mesopotamia is poor in mineral resources; the Iranian highlands are rich in mineral resources. This dichotomy was to cause trade between the two areas to take on an especially significant role in the rise and maintenance of the earliest civilizations in the Tigris–Euphrates valley.

But what was the nature of this trade? In the past Iran has commonly been viewed as a cultural backwater through the fourth, third and second millennia B.C. (e.g. Mallowan 1967: 56). Generations of Mesopotamian archaeologists, looking at Iran as if through the wrong end of a telescope, have tended to contrast the developed and urbanized centres of their early riverine civilizations with what they assumed were the sparsely populated and undeveloped resource areas of highland Iran. They thus came to regard trade as a very one-sided affair; the scattered highland settlements – being either powerless or passive, and inexperienced in the ways of long-distance organized trade – were supposed to have played a very subservient role in what was Mesopotamia-controlled and Mesopotamia-directed trade.

The recent work of Lamberg-Karlovsky in south-eastern Iran at Tepe Yahya (1970, 1971a, 1971b, 1972a), Tosi in eastern Iran at Shahr-i-Sokhta (1969), the Danes in the Persian Gulf area (Bibby 1969) and the Russians in central Asia (Masson and Sarianidi 1972) has now, however, brought a dramatic change to this traditional view. The size and richness of the proto-urban settlements being found in these regions at a date comparable to the Late Uruk/Jemdet Nasr horizon (*c.* 3400–3000 B.C.) shows the relationship between Mesopotamia and these hinterlands to have been a more balanced one, with the development of urbanization taking place synchronically in at least four culturally distinct but interrelated areas east of Mesopotamia (Lamberg-Karlovsky 1972a: 99).

The variety of materials and the evidence for large-scale production at these proto-urban sites are also making necessary a revision of old ideas about trade. It now seems evident that long-distance trade was an important factor in creating and maintaining the size and wealth of these proto-urban centres. These sites were playing not a passive, but an active and profitable role in trade with Mesopotamia and each other, both by facilitating trans-shipment of goods (e.g. lapis lazuli through Shahr-i-Sokhta) and by local production and export (e.g. chlorite, better known as steatite, from Yahya).

Recognizing the importance and complexity of this trade, Lamberg-Karlovsky and others have begun to postulate the location of trade routes (During Caspers 1971) and to

build synchronic structural models to describe the trade mechanisms involved (Lamberg-Karlovsky 1972a, 1972b; Lamberg-Karlovsky and Tosi 1973).

If late fourth and third millennium trade in this vast area between Mesopotamia and the Indus was as complex and extensive as this recent work indicates, the next questions should be diachronic in nature. Did this trade develop locally in Iran? What were the steps in its development? Why did it develop? It is these questions which form the basis for the present paper.

Tepe Yahya is a site well suited for examining possible local development of trade. Here, underlying the Period IV C Late Uruk/Jemdet Nasr horizon, there is evidence of continuous occupation going back more than a thousand years to *c.* 4500 B.C. The periodization of the early levels at the site is based on series of uncalibrated C^{14} dates (Lamberg-Karlovsky 1970: 32, 1971a: 87):

Period VI	4500–3800 B.C.
V	3800–3400 B.C.
IV C	3400–3000 B.C.
IV B	3000–2500 B.C.

The author has been personally involved in the excavation of much of the material from Periods VI and V. The data suggest that the period between 4500 and 3400 B.C. was critical in the local development of trade in highland Iran, and it is on evidence from this site and time period that this paper will focus.

A new approach

In order to understand rather than simply document the development of trade in early Iran, we must seek an approach and framework which will go beyond the simplistic conclusions that trade 'grows' or 'spreads' or 'intensifies'. In their eagerness to *explain* culture change, archaeologists unfortunately have tended to use 'expansion of trade' as a causal mechanism in their systemic, processual models without fully understanding what changes occurred in the mechanics of that trade through time (Renfrew 1969: 160). A useful way of rephrasing the question of trade development and its relation to culture change might be as follows:

1 How do the mechanics of trade change through time?
2 Why do the mechanics of trade change through time?
3 What kinds of archaeological data will reflect these changes?

From the viewpoint of the archaeological record, two major aspects of trade mechanics can be isolated: (1) the possible routes by which a raw material not locally available moves from its source or mining area through a place of production and into the hands of the consumer, and (2) the number of times it is exchanged or traded in the course of this movement. The picture, admittedly, is complicated by the fact that perishable goods involved in exchanges may not survive in the archaeological record. Nevertheless, any comprehensive, diachronic study of trade mechanics should begin by attempting to reconstruct and trace the entire life-cycle of particular artefacts through time and space

(e.g. Schiffer 1972). And such an attempt cannot proceed without first knowing the specific source areas of all the raw materials involved.

Iranian source areas (fig. 1)

East of Mesopotamia knowledge of the locations of sources for materials used in the Neolithic and Early Bronze Ages is unfortunately very limited. Indeed, there is a general paucity of published geological and mineralogical information concerning Iran, West

Figure 1 Map of some source areas and prehistoric sites in Iran (distance scale is in kilometres)

Pakistan and Afghanistan. Only rarely do reports make note of specific source areas for specific materials that would interest the archaeologist. In response to the general lack of data for the Near East, a kind of geo-archaeology has sprung up, producing a promising series of archaeologically-oriented studies of source areas (Renfrew, Dixon and Cann 1966, 1968; Caldwell 1967: 12; Herrmann 1968; Wright 1969; Lamberg-Karlovsky 1970: 61; Kohl 1972; Wright 1972). But this is only a beginning.

Alabaster and *marble* are not very useful for trade studies because they are relatively widely found in Iran. Alabaster is a fine-grained massive variety of gypsum, and gypsum is common not only in Iran (Clapp 1940: 28, 64), but also in West Pakistan and Saudi Arabia (Wadia 1953: 142; Saudi Arabia 1965: 38). Ghirshman (1938: 55) comments on the rich veins of alabaster near the town of Yazd. Tosi (1969: 368) tells of 'veritable quarries of alabaster' within sight of Shahr-i-Sokhta in eastern Iran. There is even a source of alabaster within one day's walk to the east of Yahya.

Marble, a coarse-grained variety of calcite common to limestone areas, could probably be found in the limestone-rich Zagros mountain range of western Iran. Recent isotope research (Craig and Craig 1972) has opened up exciting new possibilities by showing that it may now be possible to trace marble found on archaeological sites to specific quarrying areas. Unfortunately, specific Iranian sources are still poorly documented. Clapp (1940: 26) mentions marbles north-east of Yazd, and Harrison (1968: 516) reports both white and yellow marbles south-east of Yazd (fig. 1). A source of marble also exists *c.* 35 km. west of Yahya.

Obsidian sources have been well documented in both eastern and central Turkey by Renfrew, Dixon and Cann (1966, 1968). It is assumed that all obsidian on prehistoric Near Eastern sites came from these two areas, but there may have been Iranian sources. Local villagers at Yahya claim that obsidian exists in the volcanic mountain areas of Baluchistan, to the east of Yahya. Obsidian has also been found by the French geologist Girod in the mountains 55 kilometres east of Bam (fig. 1) (as communicated to Professor Movius, Harvard University, autumn 1971).

Steatite is the name used to describe a soft greyish stone which is found on sites all over the Near East, particularly from the third millennium B.C., and used for making many different kinds of artefacts. Philip Kohl is currently carrying out a study of steatite samples from Yahya as well as from many Mesopotamian and Persian Gulf sites. One of the initial results of his work (personal communication) is that none of the specimens examined so far is, geologically speaking, steatite, but actually a form of *chlorite*. Chlorite is sometimes, but not necessarily always, found with steatite deposits.

Chlorite has been found in great quantities in the mountains around Yahya, along with evidence of ancient quarrying (Lamberg-Karlovsky 1970: 61). Kohl is presently doing neutron-activation and X-ray diffraction analyses on his samples to see how many of them can be traced to the Yahya source area. For the moment Yahya remains the only verified ancient source of chlorite in Iran. Chlorite is, however, a relatively common stone, and deposits are also known to exist in western Saudi Arabia (Goldsmith 1971: 54) and Turkey (Kaaden 1971: 196).

Carnelian is difficult to trace to a specific source because it tends to occur in minor alluvial deposits. The only documented Iranian source of carnelian is in the dried-out branches of the Helmand River in Seistan near Shahr-i-Sokhta (Tosi 1969: 374). In

Greek and Roman times Arabia and India were the major sources of carnelian, and carnelian is still mined in many areas of India today (Brown and Dey 1955: 621–2).

Lapis lazuli is a material with a very limited natural distribution. The best known deposits are in the Badakshan region of northern Afghanistan (Herrmann 1968), the Lake Baikal region of Russia and the Mogok Stone Tract in Burma (Brown and Dey 1955: 638). Because Badakshan is the closest known source to Mesopotamia, it is assumed that this was the main source in antiquity. Thirteenth- and fourteenth-century A.D. Islamic literary sources refer to a deposit of lapis in north-western Iran (Herrmann 1968: 27), but none has been located in this area by geologists. There are more recent reports of lapis deposits between Yazd and Isfahan in central Iran (Morgan 1905: 118) and in north-western India (Iyer 1961: 73), but neither has ever been confirmed.

A possible point of confusion here may be the widespread occurrence in Iran of another bluish stone called *lazurite*. This more common stone could easily be mistaken for lapis. Further investigation is needed to determine how much of what we are presently calling lapis lazuli on early sites actually *is* lapis lazuli.

Turquoise. Both Hole (Hole and Flannery 1968: 179) and Gary Wright (1969: 55) assume that prehistoric turquoise came from the well-known sources near Nishapur (fig. 1), but the province of Kerman has also long been a source of turquoise. Pliny the Elder states in his *Natural History* (Book XXXVII, chap. 33) that Carmania (the general Kerman area) was a source of callaina (turquoise). Marco Polo, too, mentions the turquoises of Kerman (Sykes 1902: 265). Several deposits have been reported between the modern cities of Kerman and Yazd whose 'workings are very old and now largely abandoned' (Pogue 1915: 40). Among these is a deposit in the mountains close to the prehistoric site of Iblis. Almost as striking as its limited distribution in Iran is the apparent absence of turquoise anywhere to the east in India (Pogue 1915: 76; Brown and Dey 1955: 642; Ball 1881: 43).

Copper. Excellent distribution maps have been made of the many copper sources in Iran and West Pakistan (Caldwell 1967: 12; Bazin and Hubner 1969: 10, plate XXV). The Kerman region is especially rich in copper and ancient copper mines (Caldwell 1967: 324, 356, 374; Sykes 1902: 80, 209; Morgan 1905: 114; Tipper 1921: 73), including the area near the prehistoric site of Iblis (Caldwell 1967: 374).

Shell. The two most common and easily recognizable species of marine shell on prehistoric sites are the fluted dentalium and the often iridescent mother-of-pearl. Both occur in the waters of the Persian Gulf.

The Arabian (south) side of the Persian Gulf is also mineralogically rich, but remains largely unexplored. A recent survey found evidence of widespread occupation in eastern Saudi Arabia as early as the sixth millennium B.C. (Masry 1972). Sites and sources here may well have been involved in the early development of trade in Iran and Mesopotamia. Further research is needed in this region.

Evidence for early trade: Yahya

Once one has some idea of source areas, the problem is to find ways of examining excavated data which will reveal changes in the mechanics of trade. Much work in this direction has

been carried out on Near Eastern obsidian tool assemblages (Renfrew, Dixon and Cann 1966, 1968; Wright 1969; Redman 1971, 1973: 69–77).

The Yahya stone tool industry has undergone preliminary analysis (Piperno 1973), but local flint sources have not yet been well enough mapped to distinguish between locally available and imported flint. Obsidian – a total of five pieces from Periods V and VI – represents less than 0·5% of the total lithic assemblage from these early periods. Several pieces of Yahya obsidian are currently undergoing analysis by Renfrew. Whatever the source, obsidian was arriving in an insignificant trickle.

Besides the lithic tool assemblage we have found two other artefact categories which might be useful in reflecting changes in trade mechanisms: (1) beads, and (2) bone and copper implements.

Two factors should be remembered in reference to the data presented in tables 1 and 2. First, we are dealing with a very small data base, which represents a limited exposure of *c.* 350 m.^{2} over four seasons of excavation. Secondly, the data were collected without the use of screening or flotation. This means that the total number of beads collected may well be less than screening would have turned up, but the effect of the excavation methods on the relative percentages of beads of different materials was probably minimal.

TABLE 1

Beads of different materials from Periods VI and V at Yahya

	Chlorite (formerly steatite)	Turquoise	Carnelian	Clay	Bone	Identified shell	Unidentified Stone	Unidentified Shell	Totals
Period VI B–E 4500–3800 B.C.	12	3	1	4	3	7 dentalium 1 mother-of-pearl	7 and 1 blank	16	55
Period VI A–V 3800–3400 B.C.	1	15 and 64*	3 blanks	2	2	2 dentalium	6	6	101
Totals	13	82	4	6	5	10	14	22	156

* 64 indicates a complete necklace with 52 beads plus 12 bead fragments.

The most dramatic change between Period VI (4500–3800 B.C.) and V (3800–3400 B.C.) in materials used for beads is the shift from locally available chlorite to imported turquoise (table 1). Actually the shift seems to occur in Period VI A, which consists of a levelling complex and foundations for V C architecture (Beale 1971: 58–62). Although no concrete evidence of on-site *chlorite* bead production was found, the consistent shape of all the beads and the large numbers of them relative to beads of other materials suggest large-scale local production and consumption in Period VI.

The change in turquoise between Period VI and V, on the other hand, is stylistic as well as quantitative. The three Period VI beads vary in size and shape from tiny (*c.* 0·5 cm. maximum diameter), circular, and thin in cross-section to large, massive, and almost rectangular in form (Lamberg-Karlovsky 1970: plate 37 H). The individual finds of turquoise beads from Period VI A and Period V were more consistent in design, most of them tending towards a long and ovoid shape. The turquoise necklace found in the fill of Period V C architecture (Lamberg-Karlovsky 1970: fig. 44) contained *no* chlorite beads,

which supports the idea of a significant change in use and preference from local chlorite in Period VI to imported turquoise in Period V. In addition, all the beads of the necklace are of two types: cylindrical and droplet-shaped (Lamberg-Karlovsky 1970: plate 38). This consistency of design suggests large-scale consumption and much easier access to turquoise than existed in Period VI.

Chlorite is used throughout Periods VI and V in the making of a wide variety of objects other than beads: a figurine (Lamberg-Karlovsky and Meadow 1970: plate 42), mortars, pestles, 'sling balls' or counting pieces, spindle whorls, labrets, bracelets and bowls. It is interesting that for the making of larger objects such as these, where local chlorite was not competing with imported turquoise (which is usually mined in small pieces), there is no significant decrease in the use of chlorite in Period V.

The quantities of beads of other materials such as carnelian, clay, bone and shell are too small, or the changes between periods too minor, to indicate any significant changes in the use of imported versus local materials.

The second significant shift between Period VI and Period V is from bone implements to copper implements (table 2). This may merely indicate a change in local technology, but so far there is no evidence for the production of copper tools at Yahya. Until the isolated local copper source has been investigated, we suggest rather that this change reflects a shift in trade mechanics so as to regularize the import of finished copper tools from a production site or sites in the rich copper areas to the north in sufficient quantities to supplant bone tools.

TABLE 2

Bone implements versus copper implements at Yahya in Periods VI and V

	Bone implements	Copper implements
Period VI B–E 4500–3800 B.C.	4 awls or pins 4 spatulas 1 blade (knife?) 3 holders with insertion grooves 12	1 awl or pin
Period VI A–V 3800–3400 B.C.	1 awl or pin	11 awls or pins 1 spatula 1 blade 2 chisels (?) 15

Unfortunately, there are few excavated prehistoric sites in southern Iran with which to compare the Yahya data. In the valley where Yahya is located we have just begun to map other local settlements. Because of the overlying later deposits in every direction from the mound, the full extent of the Period VI and V occupations is unknown. Only 30 km. to the west, however, in the neighbouring Daulatabad valley, Martha Prickett has found a large concentration of Period VI and V sites of different sizes, from 0·2 ha. up to 10 ha. in extent (Prickett 1972). In contrast, the next valley to the south of Yahya shows no

evidence of prehistoric occupation. This coincides with the modern highland pattern where pockets of remarkably dense population in well watered valleys are scattered amidst less well watered areas with little or no population.

The differences in site size in the immediate region around Yahya suggest that already in Period VI there was some sort of redistributive sphere. The extensive levelling (Beale 1971: 54–8) and what appears to be a consistently rebuilt and reused storage complex (Lamberg-Karlovsky 1970: figs 55, 56) in Period VI suggest that Yahya was a redistribution centre, but the discovery of possibly contemporary 10 ha. sites in the neighbouring valley implies that Yahya may not have been the *only* important local centre in Period VI. Whether these larger sites differentially participated in the local redistribution of subsistence goods (grain, sheep, goats and so forth) and/or local chlorite or extra-local imports will only be resolved by the excavation of some of the sites in the immediate area. Clearly the situation is complex.

As regards more distant sites in southern Iran, excavated prehistoric sites for comparison are scarce (see fig. 1). At the late fifth- and early fourth-millennium site of Bakun B (Egami and Masuda 1962) no copper, dentalium, mother-of-pearl, beads, or any of the stones or semi-precious stones discussed above are mentioned as being present. The same lack of foreign materials is reported for Gap as well (Egami and Sono 1962), except for two copper pins from Gap Period II levels (contemporary with Yahya Period V). Of course, the paucity of materials may be due to the limited nature of these excavations and raises the problem of finding sites with *comparable* data.

North of Yahya lies the excavated site of Iblis (Caldwell 1967). The Iblis period contemporary with Yahya Period VI (Iblis O) is poorly defined. Iblis I and II have extremely close ceramic and architectural parallels with Yahya Period V. Obsidian here is as scarce as at Yahya – only one piece from Iblis I–II. There are fifteen reported pieces of steatite (probably chlorite) from Iblis I–II: thirteen bowl fragments and two pieces of a 'shaft straightener'. Chlorite is clearly less common at Iblis than at Yahya and used for a much more limited range of objects. A total of ten turquoise beads appear in Iblis I–II contexts and represent the most common type of stone bead. Interestingly enough, all the turquoise beads are of the same form – circular and thin in cross-section (Caldwell 1967: 217). This is in contrast to Yahya, where only four out of a total of eighty-two Period VI–V beads are of this form. The implication here is that Yahya was either obtaining its turquoise from a source other than Iblis, or else, if Iblis *was* the source, Yahya was receiving the turquoise mostly in raw form and making its own beads. Dentalium is reported to be common in Iblis I–II, but mother-of-pearl relatively rare.

Copper objects in the form of pins or awls, beads, bracelets, and rings are quite common in Iblis I–II. There is also evidence of local copper production (Caldwell 1967: 374). While it would be tempting to see Yahya Period V copper implements as being imported directly from this early production centre at Iblis, there is evidence which argues against such a possibility. Iblis and Yahya implements do not appear to derive from the same type of copper ore. Iblis implements are made from a copper sulphide ore (Caldwell 1967: 19), while Yahya implements are made from a copper-arsenic ore (Tylecote and McKerrell 1970).

To the east we know the fifth and fourth millennia B.C. of southern Iran only through surface sherd collections from Chah Husaini and Tepe Nurabad (Stein 1937), and Tepe

Langar (Meadow 1968). To the south Prickett (personal communication) has reported finding a large (9 ha.) Period VI–V site (Tepe Jagin) *c.* 50 km. from the Persian Gulf.

A developmental typology of trade

In examining the ethnographic literature it is apparent that while there is an almost endless variety of social contexts within which trade or exchange can and does take place, there is only a limited number of ways a material can move from source to consumer and a finite number of times it will change hands. At Yahya a series of quantitative changes in the material takes place between 4500 and 3000 B.C. The author would like to see this change not merely as an intensification of a single trade mechanism, but as an intensification involving a *changing* series of trade mechanisms by which materials moved from source to final customer. These changes can be summed up in a four-stage developmental typology: Trickle Trade, Local Redistributive Trade, Regional Organized Trade, and Long-distance Organized Trade.

Trickle Trade

In Period VI at Yahya production is based predominantly on locally available materials such as chlorite, bone, clay and freshwater shells, with other exotic materials such as obsidian, copper, turquoise, agate, carnelian and marine shells trickling in from distant sources in very small quantities.

This trickle of materials and goods can be explained by the mechanism of village-to-village or nomad-to-village, unscheduled trade similar to Renfrew's Down-the-Line Trade (1972: 465), Flannery's *ad hoc* trade (1972) or Lamberg-Karlovsky's Indirect Trade (1972b). In the life-cycle of a material which follows Trickle Trade, the material changes hands over very short distances and does so a large number of times over a long period in moving from its source to its final consumer and discard state. Such trade does not necessarily go in any particular direction, but given a large number of small transactions the tendency is for the material to fall off exponentially in quantity with distance from the source, as can be seen from the early Trickle Trade of obsidian (Renfrew, Dixon and Cann 1966, 1968).

Trickle Trade can reflect any number of social structures, but the emphasis would probably be on the social context and 'balanced reciprocity' (Sahlins 1972) rather than 'negative reciprocity' and profit or personal gain. Thus, Trickle Trade movements of materials might include such non-trade transactions as repayments of social obligations, bride price in marriages between villages, gift-giving (Mauss 1925), and so on. The kind of materials and objects moving by Trickle Trade can be anything from very utilitarian obsidian blades to purely ornamental beads.

Local Redistributive Trade

Redistribution as defined by Polanyi (1957: 250) 'designates appropriational movements towards the centre and out of it again'. We do not have sufficient data to understand

what sort of local redistributive trade might have been going on around Yahya, but there are, as noted above, some indications that it existed as early as Period VI.

Local Redistributive Trade would operate not in place of, but *in addition to* the continuing practice of Trickle Trade. Local redistribution can (but may not always) manifest itself archaeologically in differential distributions of local and/or imported materials among local sites and in differences in the size or function of local sites (e.g. Flannery 1968).

Regional Organized Trade

In Period V there is a significant increase in the import and use of turquoise and copper and a comparable decrease in the use of locally available chlorite and bone. This shift in preference as well as the standardization of turquoise bead shapes indicates much easier and more consistent access to these non-local materials.

It is suggested that this shift represents a change from Trickle Trade to Organized Regional Trade, whereby Yahya began by-passing villages and trading *directly* and regularly with the larger regional (redistributive) centres controlling a given resource – possibly with Iblis for turquoise and with some comparable site to the north for copper, and with Jagin or some comparable Persian Gulf site for marine shells. Such a network of Regional Organized Trade would thus have included direct trade over distances of 150 km. or more.

What appears to be a major characteristic of this Regional Organized Trade is an interdependence of traded materials, giving the network a web-like quality. Yahya would trade chlorite bowls to Iblis in exchange for carnelian which Iblis was receiving from eastern Iran by Trickle Trade, but it used marine shells it had obtained from Jagin to trade for Iblis turquoise. This is obviously a hypothetical and simplistic reconstruction of what was certainly a complex reality involving still undiscovered sites. However, it shows how the movement of one material across this network would be interrelated with, and dependent on, the movement of certain other materials.

Another noteworthy characteristic which seems a part of this regional trade is that the pattern of this medium distance trade would have been determined not only by cultural affinities (Iblis and Yahya have almost identical cultural assemblages) but also very much by natural trade routes, geographical barriers, distribution of the known source areas and by what site(s) controlled the mining or production of desired materials.

Long-distance Organized Trade

In Period IV C–B at Yahya (starting *c.* 3400 B.C.) an 'internationalization' of the cultural assemblage takes place. During this period monumental architecture appears along with Proto-Elamite tablets, Mesopotamia-like bevelled-rim bowls, Jemdet-Nasr pots and cylinder seals and sealings, Persian Gulf stamp seals, and chlorite bowls with incised decorative motifs paralleled exactly at many Mesopotamian and Persian Gulf sites (Lamberg-Karlovsky and Kohl 1971; Lamberg-Karlovsky 1972a).

The implication here is not simply that Regional Organized Trade was intensifying, but that a *new* trade mechanism was being used which brought Yahya in more direct contact with Mesopotamian and Persian Gulf centres. The suggestion here is that this

new mechanism was Long-distance Organized Trade, whereby many regional centres were by-passed and trade was carried out directly between Mesopotamia (or the Persian Gulf area) and sites controlling the resource areas. Because of the distances or politics involved, a few trans-shipment centres or middlemen remained, such as Shahr-i-Sokhta and perhaps Susa or Malyun (Hansman 1972); but goods were now changing hands only once or twice, if at all, in moving from sources to very distant consumer areas (fig. 2). The presence of Jemdet-Nasr sealings at Yahya and virtually identical chlorite bowls in Mesopotamia strongly suggests that chlorite objects produced at Yahya were exported directly to Susa or Mesopotamian city-states and that in return Susa and/or Mesopotamia exported commodities – perhaps textiles, linseed oil and grain – directly to Yahya.

Of course, the longer the distance goods travel without changing hands, the less stable the trade pattern is likely to be. With the beginning of direct long-distance trade, probably as early as the Jemdet-Nasr period, political control of trade routes and political control of source areas almost certainly became a dominant factor in determining the pattern of and fluctuations in trade. Profit, too, was probably now a more important goal than balanced reciprocity.

Conclusions

Given this tentative general typology for trade development, we can return in conclusion to the second and more difficult question of *why* the mechanics of trade changed through time. Clearly these different types of trade are *additive* rather than sequential. While Long-distance Organized Trade with Mesopotamia was going on in the third millennium B.C., Organized Regional Trade, Local Redistributive Trade, and even Trickle Trade were certainly continuing in highland Iran in a network whose complexity we can only begin to unravel from the archaeological record.

While the causal factors for these changes will probably vary from region to region, a certain consistency in the way trade mechanisms seem to change is suggestive: each stage represents a more efficient method for moving an increasing quantity of goods from source to consumer. A site involved in Trickle Trade of a material from a distant source has no direct way of controlling or increasing the supply. The tendency thus would be to seek increasingly direct ways of obtaining a material from the source so as to ensure a consistent and sufficient supply.

Of course, this line of reasoning implies that increasing demand brought about trade mechanism changes, when it is equally possible that increased demand was the *result* of easier access to imported materials through more efficient trade mechanisms initiated for some other social or political reason(s). Possibly the institutionalization of a permanent administrative complex and the stabilization of a hierarchical social structure accompanied the growth of Yahya into a local redistributive centre, and these in themselves provided the means and the catalyst for taking up longer range Regional Organized Trade. Another popular processual explanation is that population increases cause internal changes such as increased demand, and this in turn could have necessitated changes in trade mechanism to increase the supply. Perhaps the changes began with something as simple as a local shift in styles or status symbols.

Processual cause-and-effect explanations for these changes in trade mechanisms will

continue to be somewhat speculative because the exact interrelationship of factors is so difficult to document from the archaeological record. Two important factors stand out, however, as possible contributing causes in these postulated trade changes. The first is the domestication of pack animals. The domestication of the onager and/or camel as pack animals would have made it possible, practical and desirable to move large quantities of goods over longer distances with a smaller expenditure of manpower. Unfortunately, we do not know how early these animals were domesticated. Bones of equids are found at Yahya from the earliest levels of Period VI. The earliest known occurrence of camels in Iran is a Bactrian camel painted on an early fourth millennium Sialk sherd (Ghirshman 1938: plate LXXIX, no. A2). The depiction of what may be a camel harness on a Khurab pick-axe from south-eastern Iran has also been noted (Lamberg-Karlovsky 1969: 168) and dated by ceramic parallels with Yahya to the early third millennium B.C. (During Caspers 1972). Finally, woven camel hairs and camel dung have been found in third millennium contexts at Shahr-i-Sokhta (Tosi 1972).

The second possible factor might have been a conscious search by enterprising individuals or groups for ways to reduce the high cost of non-local goods. Henry Wright (1972: 100) explains the increase of an imported material relative to a locally available material at Farukhabad as reflecting a decrease in the exchange value of that material, but this only begs the question of why the exchange value would decrease. Sahlins (1972: 280) describes from ethnographic data how the exchange value of goods increases with distance from the source and with each exchange of goods between source and final consumer. Thus, changing trade mechanisms can perhaps in part be seen as the gradual expansion of a *by-pass phenomenon* whereby consumers or individuals who might profit from trade sought consistently to reduce the number of intermediaries along the trade chain and deal more directly with the source area so as to reduce the cost of desired goods.

This *by-pass phenomenon* means that Regional Organized Trade networks would not have been static, but expansive in nature. It is also tempting to see the *by-pass phenomenon* operating in the late fourth millennium transition from Regional Organized Trade to Long-distance Organized Trade: individual entrepreneurs, be they state- or self-supported, would have realized that the way to reduce costs and increase the quantity of

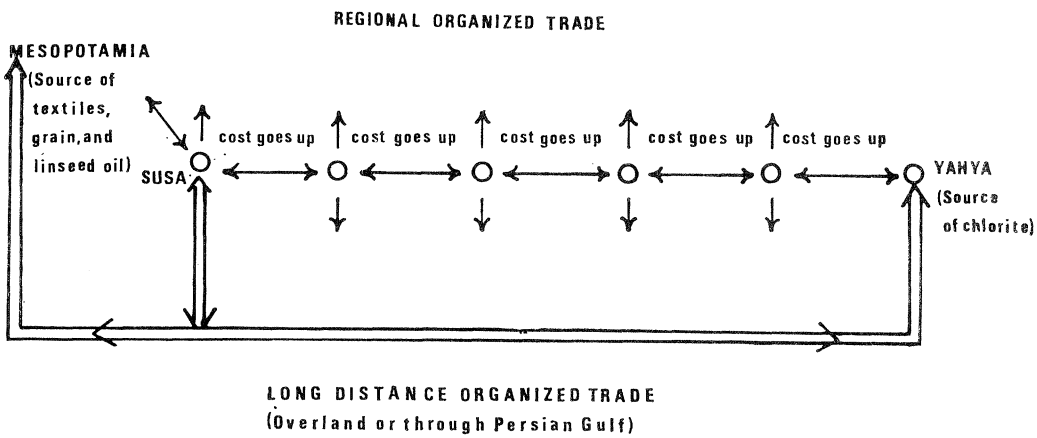

Figure 2 Schematic model for the transition from Regional Organized Trade to Long Distance Organized Trade in the late fourth millennium B.C.

imported goods was to by-pass regional trade networks and go directly to the source of the raw materials, or to the local centres controlling them (fig. 2).

Certainly our data base needs to be greatly expanded. Much work also remains in determining which sources were used in which periods, and in sharpening our focus chronologically so that we can pick out smaller fluctuations in trade patterns over shorter periods of time. But the basic facts of development are clear: trade was no more the gift of Mesopotamia to Iran than was urbanization. A thriving regional trade network arose locally and independently in the source areas of highland Iran, and long-distance trade between Mesopotamia and Iran in the late fourth and third millennium B.C. was not the first, but the final stage of development superimposed on an already well-developed regional trading system within Iran.

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Abstract

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Early trade in highland Iran: a view from a source area

Trade between resource-poor Mesopotamia and the resource-rich Iranian highlands played an important role in the rise and maintenance of the earliest civilizations in the Tigris–Euphrates valley. This paper examines the development of that trade from the perspective of the Iranian resource areas. A methodology for the study of trade development is discussed, emphasizing the importance of knowing source areas. Iranian sources for alabaster, marble, obsidian, steatite (chlorite), carnelian, lapis lazuli, turquoise and copper are noted. Evidence for the development of trade between 4500 and 3000 B.C. at the site of Tepe Yahya is examined in detail. A developmental typology of trade is presented, and some possible causal factors – such as the *by-pass phenomenon* – are suggested for this development.